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What does AI have to do with accessibility?

Disability is the gap between the world as we've designed it and an individual's ability to navigate that world. AI can both bridge and narrow that gap.

The promise of AI is the capacity to amplify human capability.

* It can also amplify our worst biases & behaviors, which Ioana will talk about.



A 3D rendering of a warehouse conveyor belt system. The scene is viewed from a low angle, looking down the length of the conveyor. Several cardboard boxes are positioned on the belt, moving away from the viewer. The boxes are light brown and feature various labels, including barcodes and a recycling symbol. The conveyor belt itself is a dark, reflective surface, and the floor beneath it is a dark blue-grey color with a glowing red grid pattern. The lighting is dramatic, with a bright light source at the far end of the conveyor, creating a strong perspective and highlighting the edges of the boxes and the grid lines. The overall aesthetic is clean, modern, and industrial.

AI is excellent at
repetitive tasks.

AI can provide
guidance





**AI enables people
with disabilities to
empower themselves
on their own terms**

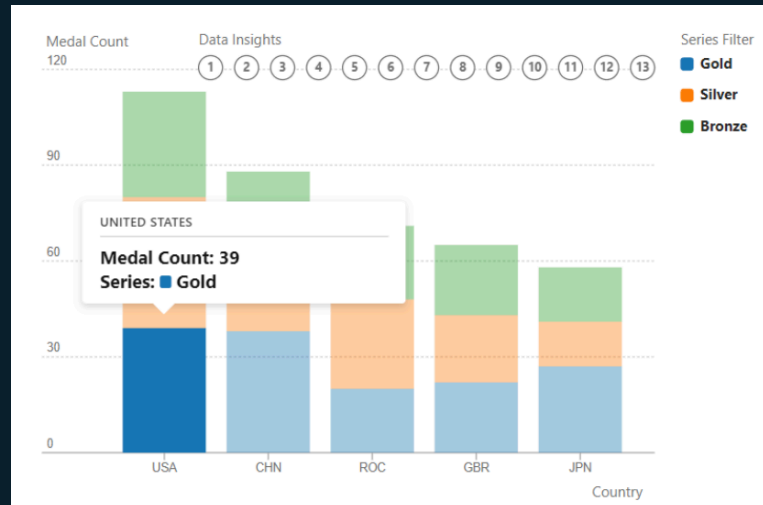
Use Case: Improved Descriptions

Images



Alt Text: A brownie with a glass of milk and a spoon

Charts



“the United States has the highest total number of medals, followed by China, Russia, and Great Britain. Japan has the lowest total number of medals. Of the Gold medals, the US has the highest number of medals and Russia has the lowest...”

Our World





THE
PROMPT

with Jesse Paul

Presented by



Microsoft

Use Case: Adaptive Content

The screenshot shows a document editor interface. At the top, there is a menu bar with 'ces', 'Review', 'View', and 'Help'. To the right of the menu bar is a 'Comments' button. Below the menu bar is a rich text editor toolbar with various icons for text formatting (font size, bold, italic, underline, color, background color), lists, indent, link, search, and other functions. The main content area is divided into two sections. The first section is titled 'Copilot summary' and contains a paragraph summarizing the EcoWind Quarter Sales Report, followed by a bulleted list of key performance indicators and product performance details. A 'View more' button is located at the end of the list. The second section is titled 'EcoWind Weekly Sales Report' and contains a sub-section for 'Week 02: Jan 8 - Jan 14' with a paragraph of text.

ces Review View Help

Comments

11 A A B I U ...

Copilot summary

The EcoWind Quarter Sales Report reveals a positive trajectory in sales across all products. The ReiTurbine is the leading revenue generator, and there's a significant uptick in inquiries for a new model, the EcoWind Vortex. ¹

- Key Performance Indicators: Sales Revenue: \$1.1M, New Leads: 9, Conversion Rate: 9%, Customer Retention Rate: 98%. ²
- Product Performance: Details about three products (Commercial and Industrial Turbines) are provided, including units sold, weekly growth, and revenue. ³

[View more](#)

EcoWind Weekly Sales Report

Week 02: Jan 8 - Jan 14

This week, EcoWind has seen a sustained positive trajectory in sales across all product lines. Commercial turbines (Comm-Turbines) continue to be the leading revenue generator, with a significant uptick in inquiries for our newest model, the EcoWind Vortex.

Use Case: Adaptive Content

Chart Reader: Accessible Visualization Experiences Designed with Screen Reader Users

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2023, Hamburg, Germany. ACM, New York, NY, USA, 18 pages. <https://doi.org/10.1145/3544548.3581186>

ABSTRACT

Even though screen readers are a core accessibility tool for blind and low vision individuals (BLVIs), most visualizations are incompatible with screen readers. To improve accessible visualization experiences, we partnered with 10 BLV screen reader users (SRUs) in an iterative co-design study to design and develop accessible visualization experiences that afford SRUs the autonomy to interactively read and understand visualizations and their underlying data. During the five-month study, we explored accessible visualization prototypes with our design partners for three one-hour sessions. Our results provide feedback on the synthesized design concepts we explored, why (or why not) they aid comprehension and exploration for SRUs, and how differing design concepts can fit into cohesive accessible visualization experiences. We contribute both Chart Reader, a web-based accessibility engine resulting from our design iterations, and our distilled study findings—organized by design dimensions—in the creation of comprehensive accessible visualization experiences.

CCS CONCEPTS

• **Human-centered computing** → **Visualization design and evaluation methods; Accessibility systems and tools.**

KEYWORDS

accessibility, data visualization, blind and low vision, screen readers, iterative co-design, accessible visualization experiences, accessibility

1 INTRODUCTION

Data visualization enables people to efficiently explore data and effectively communicate insights. However, due to its inherent reliance on human visual capabilities, data visualization is not readily accessible to blind or low vision individuals (BLVIs). Screen readers are a core assistive technology tool for BLVIs, which announces digital content as synthesized speech. They, however, are optimized for reading structured document content, which is at odds with spatial, temporal, and non-linear forms of multimedia (e.g., images, videos, maps, charts). Most data visualizations, even on mainstream websites, are incompatible with screen readers [27].

BLVIs who use a screen reader experience one of the following circumstances when they encounter a web-based visualization: (1) nothing (undiscovered by the screen reader), (2) a textual description (experiences vary, e.g., from “object” to “an image of a bar chart,” to rich descriptions of the visualization including meaningful insights, such as overall trends), and (3) interactive or explorable descriptions of the visualization and underlying data. Sometimes, a data table (or downloadable data file) is provided in lieu of or in addition to a visualization.

Obviously, undiscoverable charts or nonsensical descriptions of them are the worst-case scenarios for screen reader users (SRUs). As a baseline, accessibility guidelines recommend visualization au-

The screenshot shows the Microsoft Copilot interface. At the top, there are tabs for 'Work' and 'Web', and a green shield icon. Below that, the Copilot logo is followed by the text 'Copilot' and 'Can you summarize this P...'. There are also icons for adding a new chat and a menu. The main chat area shows a message from 'You' asking 'Can you summarize this PDF in 5 bullet points or less?'. Below this, a system message states 'Copilot is using page content to answer. Manage settings'. Another Copilot message follows, saying 'Searching your page for information' and 'Sure! Here are the key points from the PDF titled "Chart Reader: Accessible Visualization Experiences Designed with Screen Reader Users":'. The key points listed are: 1. **Purpose:** The study aimed to improve accessible visualization experiences for blind and low vision individuals (BLVIs) by designing and developing the Chart Reader, a web-based accessibility engine. At the bottom, there is a text input field with the placeholder 'Message Copilot...' and icons for adding attachments and sending the message.

Use Case: Adaptive Input

Listening... Say "turn off microphone" or long press the mic button to turn off the mic.

Voice access guide

Work with menus and options

Voice access helps you interact with buttons, menus, and other options. To learn how, try the steps below in order.

Before trying the steps below, turn on your mic by saying "voice access wake up."


Try saying click followed by the name of a control, like "click animal friend."

Try saying click followed by the name of an animal after opening the list, like "click cat."

Try saying "show numbers here" to place number labels on the background color options. You can also use this command with any of the controls that you want to interact with.

Try saying click followed by a number to choose a color.

Practice here by customizing your animal friend



Animal friend: Dog

Size: [Slider]

Background color: [Grey] [Purple] [Red] [Pink] [Teal] [Yellow] [Blue]

Add shadow Picture border

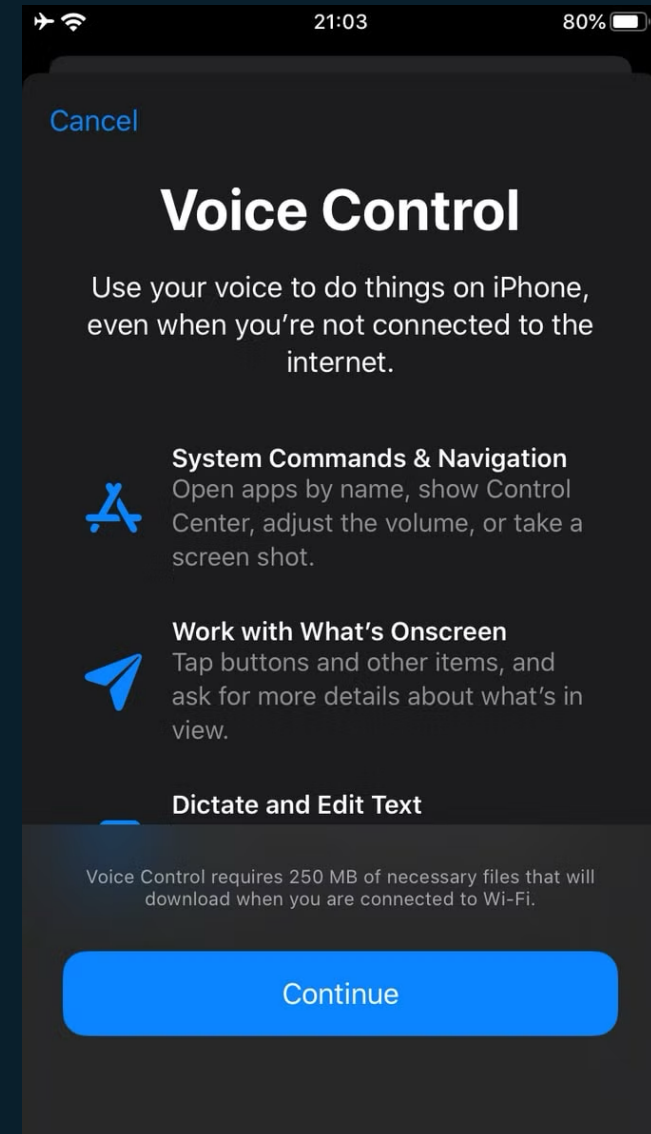
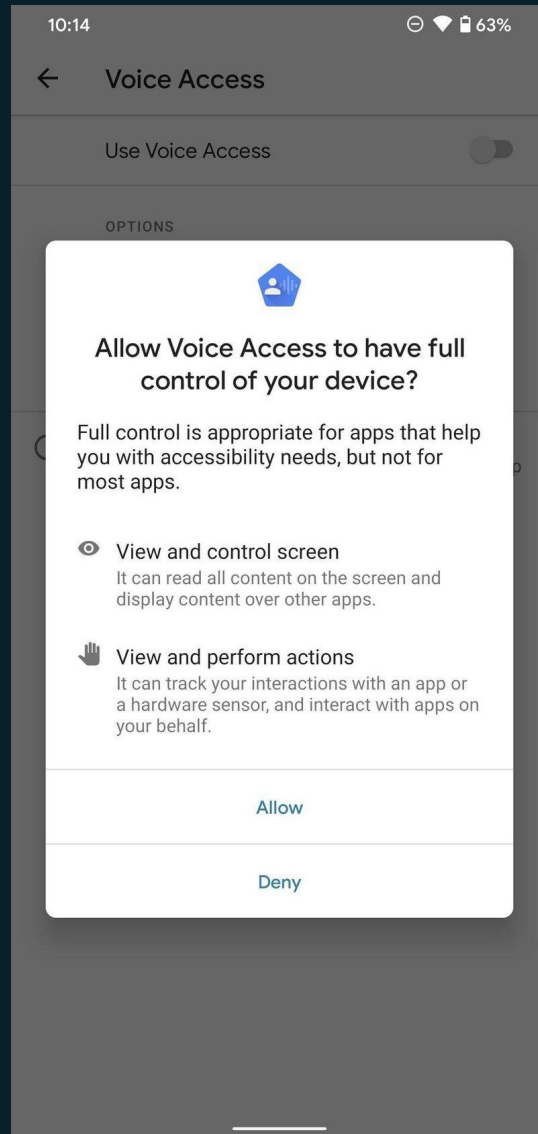
1 of 4

Off [Toggle]

Add device

76°F Haze 2:34 AM 9/15/2022

Use Case: Adaptive Input



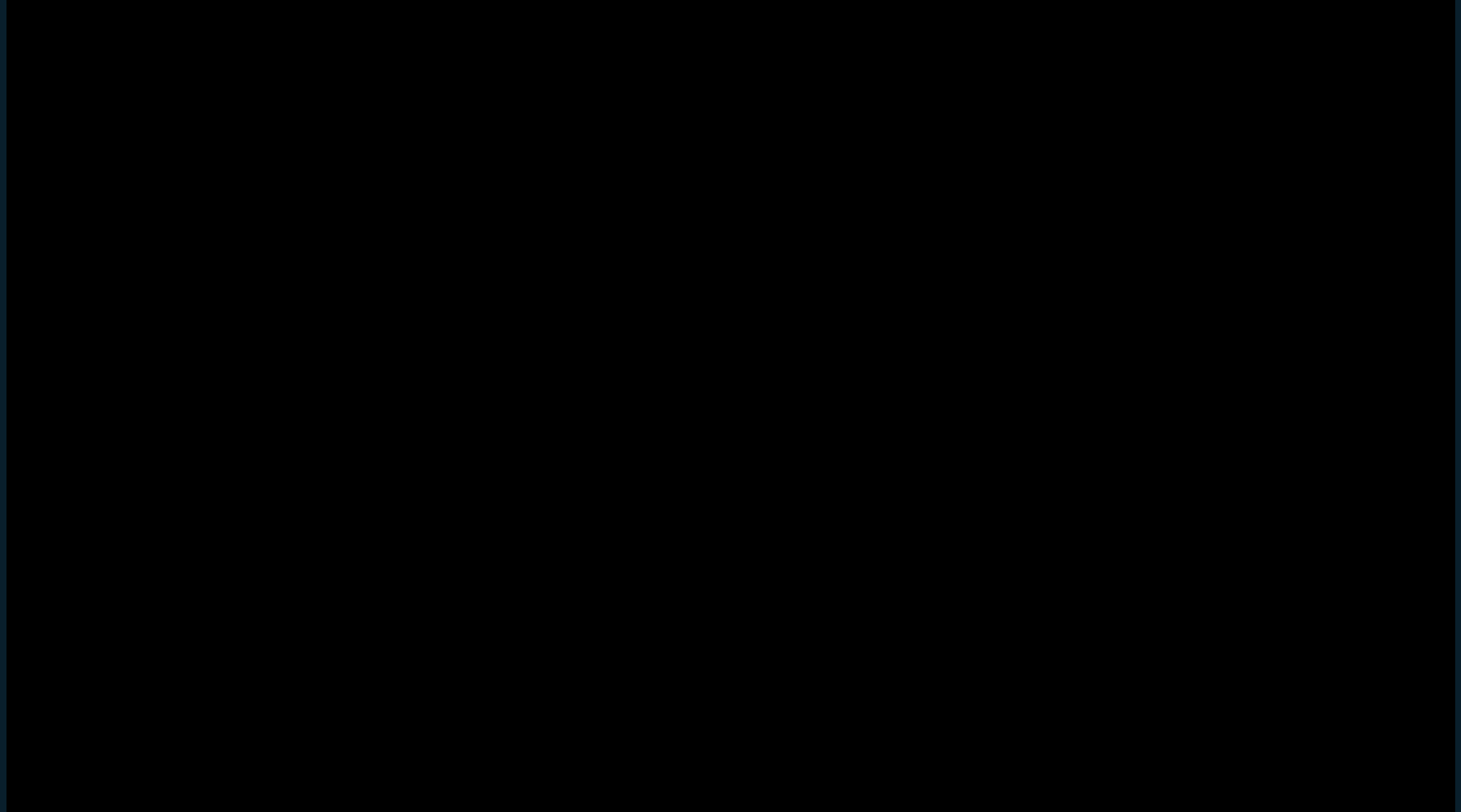
Use Case: Adaptive Input

Coming together to expand voice recognition

The University of Illinois Urbana-Champaign has announced the Speech Accessibility Project, a new research initiative to make voice recognition technology more useful for people with a range of diverse speech patterns and disabilities.



Use Case: Adaptive Input



Use Case: Improved Communication



“The less I type, the better”: How AI Language Models can Enhance or Impede Communication for AAC Users

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ABSTRACT

Users of augmentative and alternative communication (AAC) devices sometimes find it difficult to communicate in real time with others due to the time it takes to compose messages. AI technologies such as large language models (LLMs) provide an opportunity to support AAC users by improving the quality and variety of text suggestions. However, these technologies may fundamentally change how users interact with AAC devices as users transition from typing their own phrases to prompting and selecting AI-generated phrases. We conducted a study in which 12 AAC users tested live suggestions from a language model across three usage scenarios: extending short replies, answering biographical questions, and requesting assistance. Our study participants believed that AI-generated phrases could save time, physical and cognitive effort when communicating, but felt it was important that these phrases reflect their own communication style and preferences. This work identifies opportunities and challenges for future AI-enhanced AAC devices.

KEYWORDS

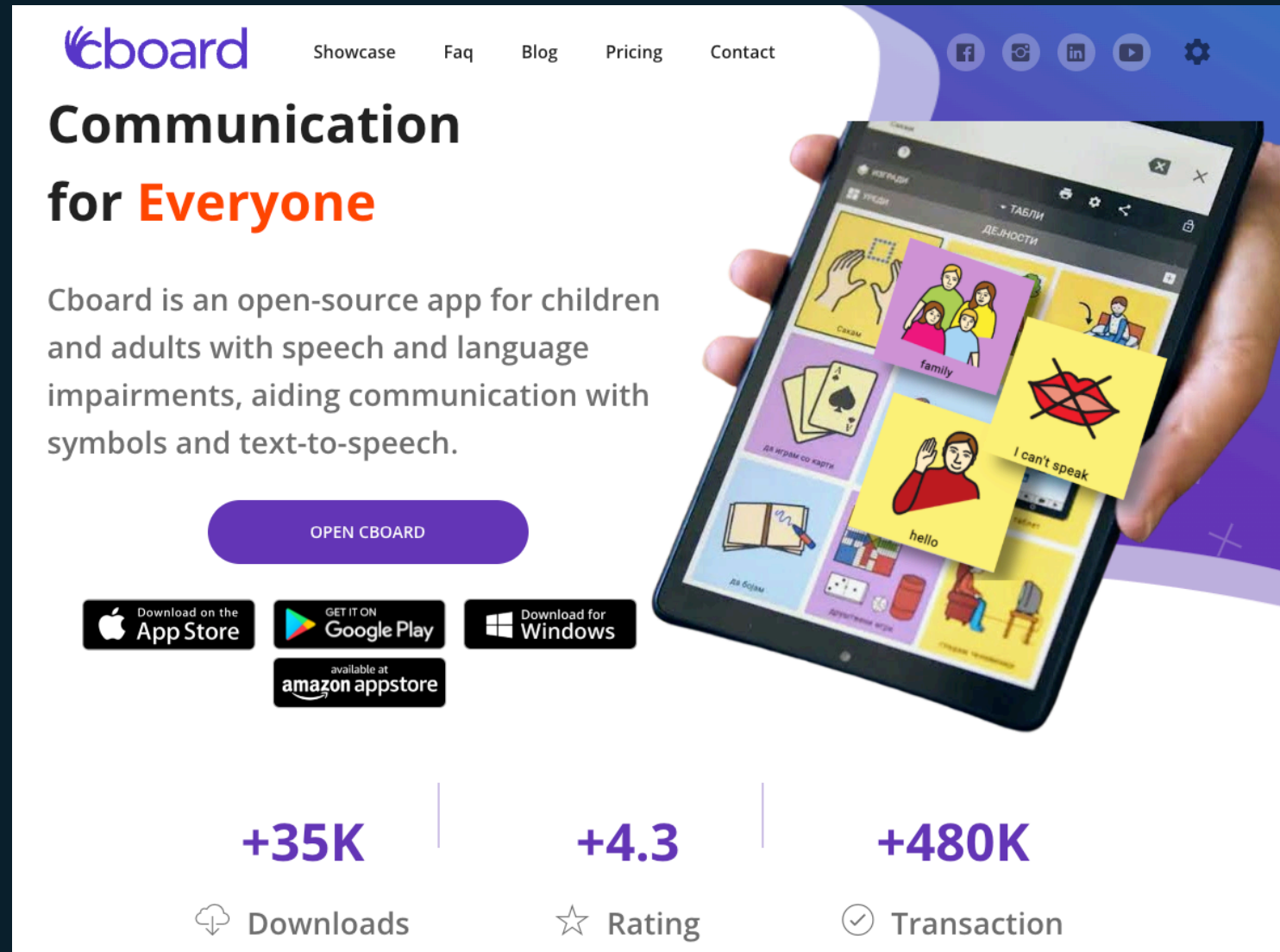
accessibility, communication, artificial intelligence, large language

with a wide variety of abilities and disabilities may use AAC devices to assist with communication. Given the variety of AAC users, AAC devices themselves often vary in their use: users may interact with the device through gaze, touch, or with a physical switch; users may select words through menus, by typing them with a keyboard, or with some combination of the two; AAC output may be read aloud, shared as text, or stored for later use [2].

While AAC users and devices may vary, there are some general challenges that affect many AAC users. For example, AAC users often communicate more slowly than non-AAC users [30]. As a result, they may feel pressure to respond in time or struggle to participate in a conversation. Some AAC users report that using an AAC device requires high physical and cognitive effort, which impacts AAC users' ability to effectively express themselves [16, 20]. Much research around AAC focuses on the goals of reducing the effort of AAC input and increasing the speed of AAC composition.

A primary strategy for improving AAC performance is to predict what the user intends to type and offer it as a suggestion [34]. These predictions can come from many sources, including static language models [34], photographs [12, 13], or contextual information about the user [28, 12]. AAC users themselves have made attempts to predict

Use Case: Improved Communication



The image shows a screenshot of the Cboard app's website on the left and a hand holding a tablet displaying the app's interface on the right. The website features the Cboard logo, navigation links (Showcase, Faq, Blog, Pricing, Contact), and social media icons. The main heading is "Communication for Everyone", with "Everyone" in orange. Below this is a paragraph describing the app as an open-source tool for children and adults with speech and language impairments. A purple button labeled "OPEN CBOARD" is present, along with download links for the App Store, Google Play, Windows, and Amazon Appstore. At the bottom, three statistics are listed: +35K Downloads, +4.3 Rating, and +480K Transaction.

cboard Showcase Faq Blog Pricing Contact

Communication for **Everyone**

Cboard is an open-source app for children and adults with speech and language impairments, aiding communication with symbols and text-to-speech.

[OPEN CBOARD](#)

Download on the **App Store** GET IT ON **Google Play** Download for **Windows** available at **amazon appstore**

+35K Downloads

+4.3 Rating

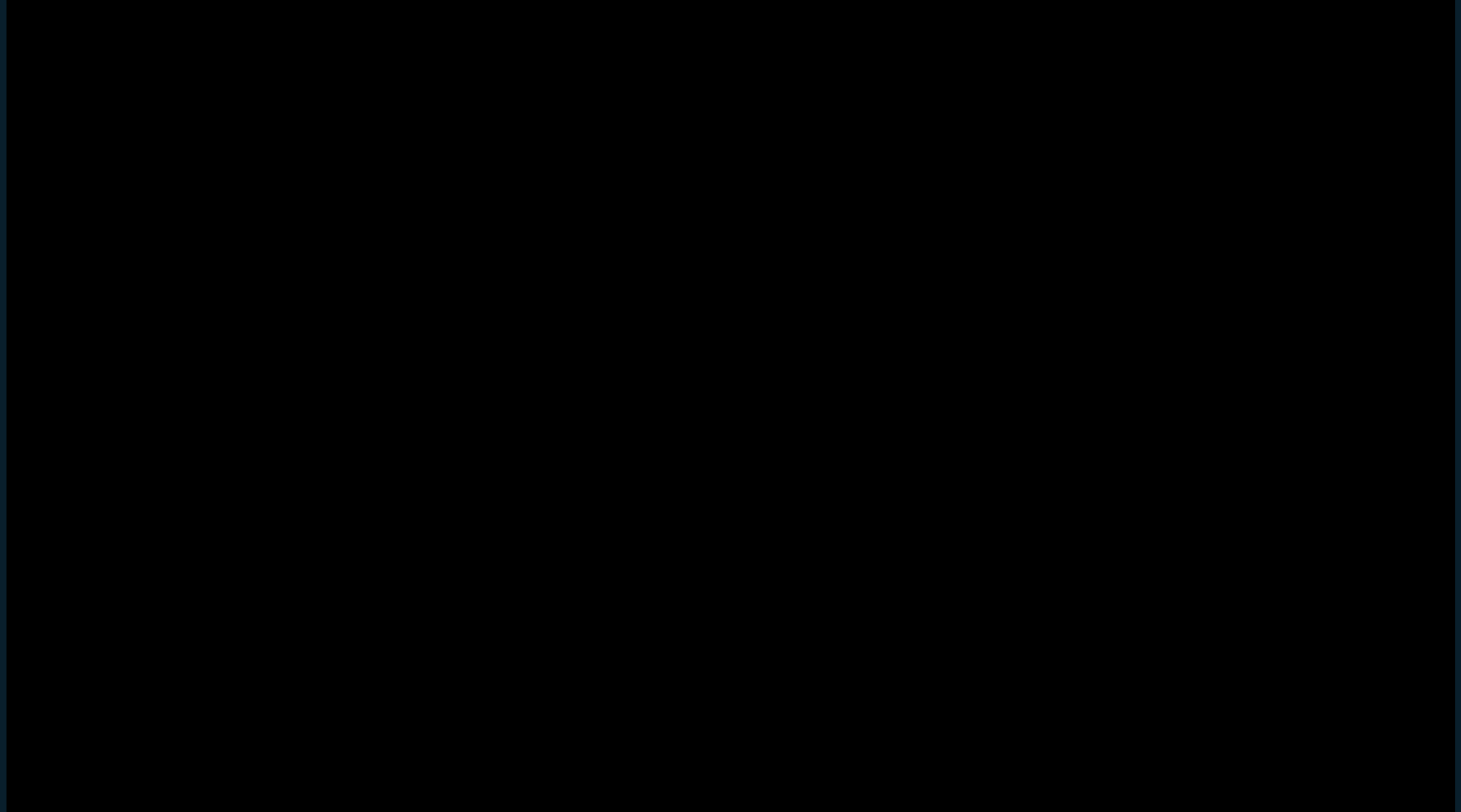
+480K Transaction

Use Case: Improved Communication



Pilot to create 30 high quality "softfakes" for people who lost their ability to speak due to ALS

Use Case: Improved Communication





With great power
comes great
responsibility

What is Responsible AI?

Geebo 🟡 @GeeboAds · Jan 12
More police warn of AI voice scams

By Greg Collier

AI voice spoofing refers to the use of artificial intelligence (AI) technology to imitate or replicate a person's voice in a way that may deceive listeners into thinking they are hearing the real person. This technology can be...

[Show more](#)



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Apr 18, 2024 - Sports

Exclusive: Using AI, Steve Gleason creates art for first time since ALS diagnosis



Chelsea Brasted



Responsible AI Principles

Fairness

Quality of service
Allocation of resources and opportunities
Minimization of stereotyping, demeaning, and erasing outputs

Reliability & Safety

Reliability and safety guidance
Failures and remediations
Ongoing monitoring, feedback, and evaluation

Privacy & security

Privacy Standard compliance
Security Policy compliance

Inclusiveness

Accessibility compliance (WCAG, legislation etc)

Accountability

Impact Assessment
Oversight of significant adverse impacts
Fit for purpose
Data governance and management
Human oversight and control

Transparency

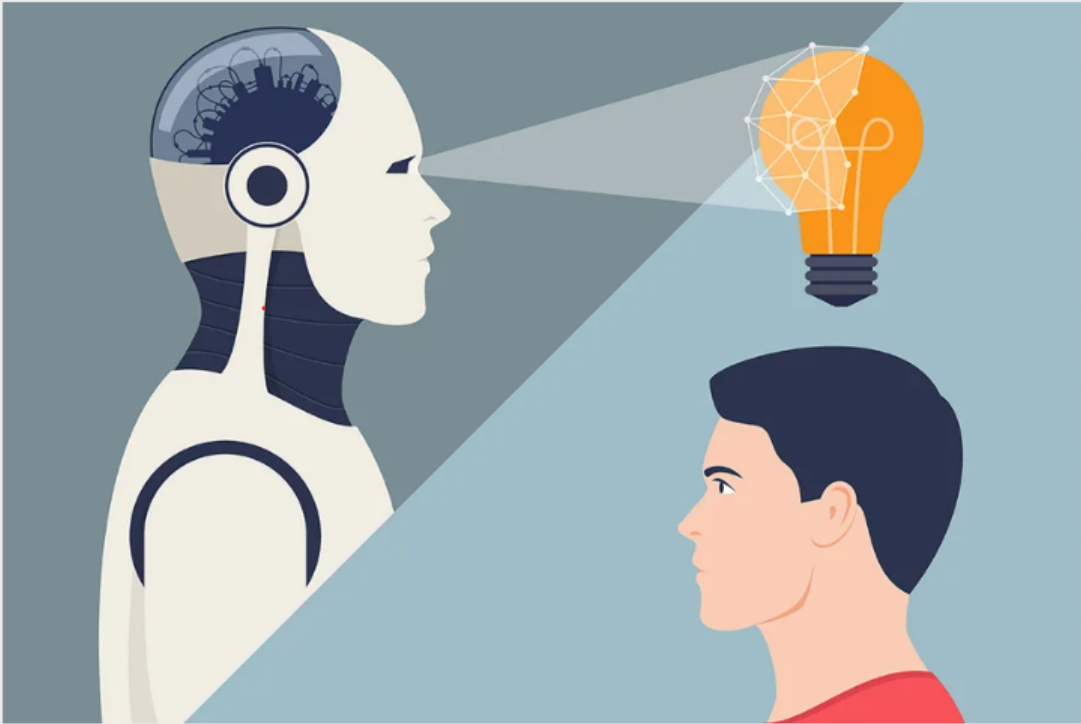
System intelligibility for decision making
Communication to stakeholders
Disclosure of AI interaction

OCTOBER 26, 2023 | 6 MIN READ

Humans Absorb Bias from AI—And Keep It after They Stop Using the Algorithm

People may learn from and replicate the skewed perspective of an artificial intelligence algorithm, and they carry this bias beyond their interactions with the AI

BY LAUREN LEFFER



Maksim Akhramenka/Getty Images

ACTU

Un client malvoyant obtient 3000€ après l'expulsion de son chien-guide d'un Monoprix

Un client malvoyant expulsé d'un Monoprix à cause de son chien-guide 🦮. Après 4 ans de bataille judiciaire ⚖️, le directeur du magasin est condamné pour discrimination. La formation des agents de sécurité sur les droits des personnes handicapées est cruciale pour éviter ce genre d'incident 🚨.

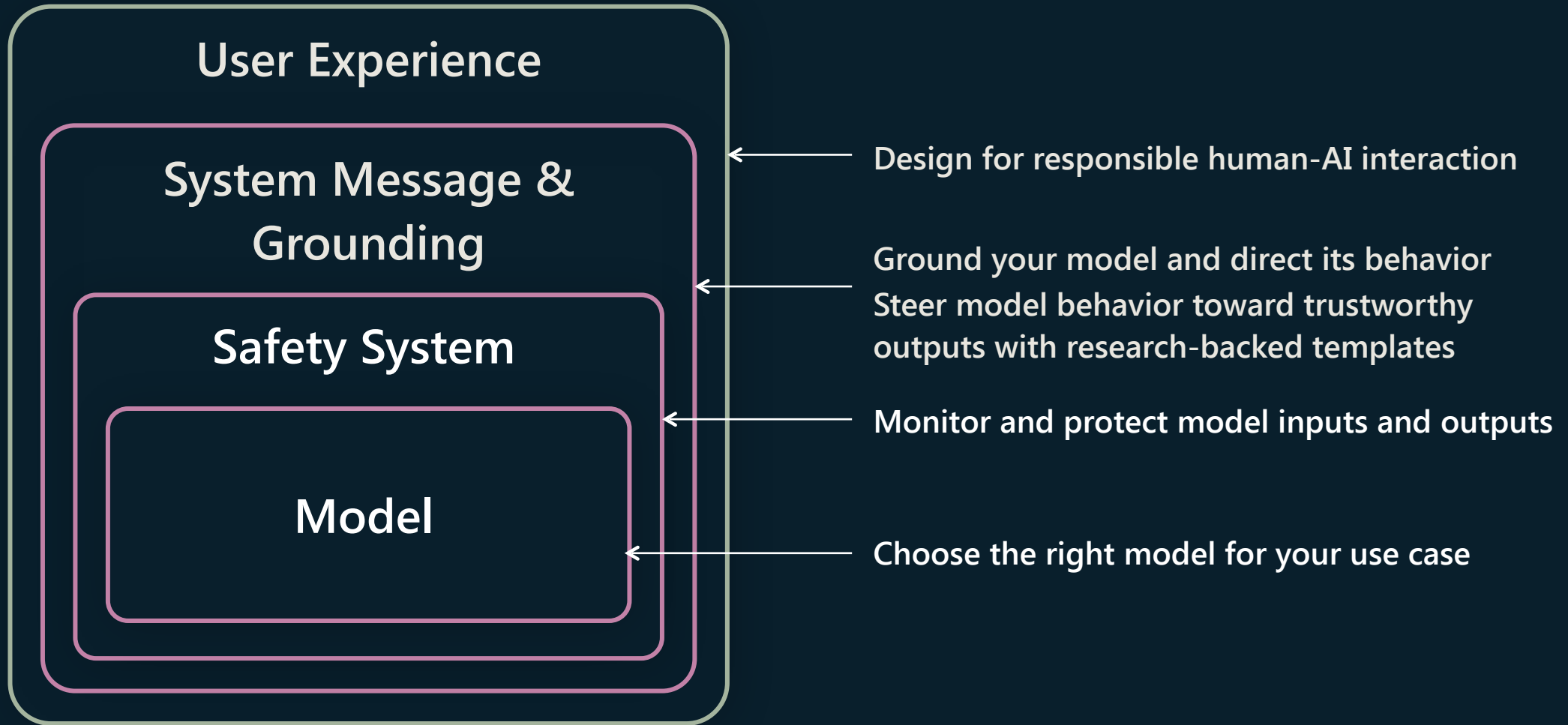
MICKAËL MINGEAU

8 octobre 2024 . 7:32 PM — 1 lecture min



[Source: Humans Absorb Bias from AI--And Keep It after They Stop Using the Algorithm | Scientific American](#)

Risk mitigation layers



[More about system messages on Safety system messages - Azure OpenAI Service | Microsoft Learn](#)

RAI Homework

Establish and implement RAI practices and governance

Involve people with disabilities in your full product cycle (including RAI)

Learn more on [Empowering responsible AI practices](#) |

[Microsoft AI](#)



What's the next (accessible) stop on our journey?



Trends and opportunities

Agents

What are opportunities to automate current non accessible experiences?

Generative UX

Sign language

Models for signs to text or text to sign

Policy and legislation

- EU AI Act
- European Accessibility Act
- US: 2024 over 400 AI bills proposed

Innovation at the forefront

Cboard Breakthrough: Enhancing AAC Communication with AI- Powered Sentence Creation

Mon Oct 30 2023

Empowering Communication using artificial intelligence

[Continue reading...](#)



AI FOR ACCESSIBILITY

IWill GITA is leveraging Generative AI to expand mental healthcare

Joana Tapasco | May 8, 2024

A secret innovation formula: aka.ms/InnovationToolkit

Step 1 – Connect with your passion

Step 2 – Identify the wave

Step 3 – Think about your customers

Step 4 – Craft a vision statement

Step 5 – Validate your prototype or solution

Here's a few other things to get you started

**Learn more about
Accessibility at Microsoft**

[Microsoft.com/accessibility/resources](https://microsoft.com/accessibility/resources)

**Get your Accessibility
Fundamentals badge**

aka.ms/AccessibilityFundamentals

**Explore Copilot
scenarios**

aka.ms/ThisIsMyCopilot

Get tech support

aka.ms/eDAD

Thank you!